Tri-Party Agreement Milestone Review
July 23, 2002

0058115

TO: Distribution

From: E. J. Murphy-Fitch, FH TPAI
A1-14/(509) 376-8868

Distribution:

Ballard, W. W.	RL	A5-12	Jim, R.	Yakama	
Bilson, H. E.	RL	H0-12	Logan, T. E.	BHI	H0-09
N. C. Boyter	FH	X3-71	Mattlin, E. M.	RL	A5-58
Buxbaum, M.	FH	B3-53	Morrison, R. D.	FH	A1-14
N. Ceto	EPA	B5-01	Murphy-Fitch, E. J.	FH	A1-14
Clark, C. E.	RL	A5-15	Niles, K. S.	ODOE	
Cusack, L.	Ecology	B5-18	Piippo, R. E.	FH	A1-14
Day, P.		H0-50	Price, J.	Ecology	B5-18
Einan, D.	EPA	B5-01	Rudd, L.	Ecology	B5-18
Gadbois, L.	EPA	B5-01	Sanders, G. H.	RL	H0-12
Gay, R.	CTUIR		Skinnarland, E. R.	Ecology	B5-18
Hales, J. E.	FH	A1-14	Sobczyk, S.	NezPerce	
Hebdon, J. B.	RL	A5-15	Stanley, R.	Ecology	Lacey*
Hedges, J.	Ecology	B5-18	Thompson, S.	FH	N1-25
Helmann, S. L.	RL	A4-79	Umek, A. M.	FH	X3-71
Henry, G.	ODOE		VanLueven, D. B.	FH	H5-20
Hertzel, J. S.	FH	A1-14	Veitenheimer, S.J.	RL	A4-79
Iwatate, D. F.	FH	A1-14	Yerxa, J.	RL	A5-15
			Administrative Record	EDMC	H6-08

The July 23, 2002, Tri-Party Agreement Milestone Review of the Spent Nuclear Fuel Project was cancelled. The SNF presentation provided to the U.S. Environmental Protection Agency (EPA) is attached.

Hanford Spent Nuclear Fuel Project

Tri-Party Agreement M-34 Milestone Review

Mark French

U.S. Department of Energy,
Richland Operations Office

July 23, 2002

Hanford Spent Nuclear Fuel Project

TPA Milestone Status

for Milestones with Due Dates March 2002 through July 2007

Number	Milestone Title	Due Date	Status/Comments
M-34-29	Complete K East (KE) Basin and K West (KW) Basin Facility Modifications for AFTS Cask Transportation System	3/31/2002	Late delivery of transfer system design and equipment delayed completion of construction. Turnover to Operations scheduled by July 26, 2002.
M-34-12-T01	Complete construction of Sludge Water System (SWS)	9/30/2002	On Schedule (schedule very challenging)
M-34-17	Initiate KE to KW fuel transfer	11/30/2002	On Schedule
M-34-18A	Complete removal of 957 Metric Tons of Heavy Metal (MTHM) of Spent Nuclear Fuel (SNF) from the KW Basin	12/31/2002	Currently 61 days behind schedule. Taking actions to recover schedule.
M-34-08	Initiate full scale KE Basin sludge removal	12/31/2002	On Schedule (schedule very challenging)
M-34-27-T01	Complete removal of 1252 MTHM of SNF from KW Basin	5/31/2003	On Schedule
M-34-28	Complete removal of 1619 MTHM from the KW Basin	12/31/2003	On Schedule
M-34-25-T01	Complete transfer of KE Basin Spent Nuclear Fuel (SNF) to KW Basin	5/31/2004	On Schedule
M-34-18B	Complete removal of all K Basin SNF	7/31/2004	On Schedule
M-34-10	Complete sludge removal from K Basins	8/31/2004	On Schedule
M-34-23	Start KE water removal	9/30/2004	On Schedule
M-34-09-T01	Complete K Basins rack & canister removal	1/31/2005	On Schedule
M-34-24	Complete KE Basin water removal	9/30/2005	On Schedule
M-34-21-T01	Initiate full-scale KW Basin water removal	10/31/2005	On Schedule
M-34-22	Complete KW Basin water removal	8/31/2006	On Schedule
M-34-00A	Complete removal of K Basin fuel/sludge/debris/water	7/31/2007	On Schedule

TPA Milestone Status (continued)

Milestone(s) to be Completed in 4th Quarter FY 2002

Interim Milestone M-34-29 (Due March 30, 2002)

Complete K East Basin and K West Basin Facility Modifications for AFTS Cask Transportation System - This interim milestone shall be complete when all modifications to support transfer of SNF from KE Basin to KW Basin are complete. All modifications shall be constructed and installed and all construction acceptance tests (CATs) shall be completed. The Construction Completion Document, Section IB shall be signed with either no exceptions or with only minor exceptions, which do not affect the functionality of the system.

Status: Late delivery of transfer system design and equipment delayed completion of construction. Forecast completion July 26, 2002.

TPA Milestone Status (continued)

Milestone(s) to be Completed in 4th Quarter FY 2002

Interim Milestone M-34-12-T01 (Due September 30, 2002)

Complete Construction of SWS - The K East Basin Sludge and Water System (shall be constructed and installed and DOE shall concur that all acceptance test have been completed for turnover to operations by signing the Construction Completion document, Section IIA (or equivalent form), with either no exceptions or with only minor exceptions, which do not affect the functionality of the system.

Status: Major technical issues are resolved. Present schedule is very challenging.

TPA Milestone Status (continued)

Milestones due in next 6 months:

Interim Milestone M-34-17 (Due November 30, 2002)

Initiate Removal of K East Basin Spent Nuclear Fuel - Initiate removal of spent nuclear fuel from the K East Basin and transport to the K West Basin. *Also, initiate collection and containerization of K East Basin sludge from canisters, floor, and weasel pit.*

[Note: RL is proposing, via a TPA change request that the reference (shown in italics) to initiating sludge containerization be deleted from M-34-17. Due to design changes, containerization as part of M-34-17 is no longer necessary to support full-scale sludge removal (M-34-08).

Status: On schedule.

TPA Milestone Status (continued)

Milestones due in next 6 months:

Interim Milestone M-34-08 (Due December 31, 2002)

Initiate full scale K East Basin sludge removal - DOE shall complete and approve K East sludge removal definitive design documents, all associated construction, and readiness assessments, and initiate removal of sludge from the Basin.

Status: Major technical issues are resolved. Present schedule is very challenging.

Interim Milestone M-34-18A (Due December 31, 2002)

Complete Removal of 957 Metric Tons of Heavy Metal of Spent Nuclear Fuel from the K West Basin - This interim milestone will be complete when 957 metric tons of heavy metal of spent nuclear fuel have been removed from the K West Basin and transported to the Cold Vacuum Drying Facility.

Status: Currently 61 days behind schedule. Taking actions to recover schedule. Anticipate no impact to M-34-18B (removal of all K Basin SNF) by July 31, 2004.

Significant Accomplishments

Fuel Movement:

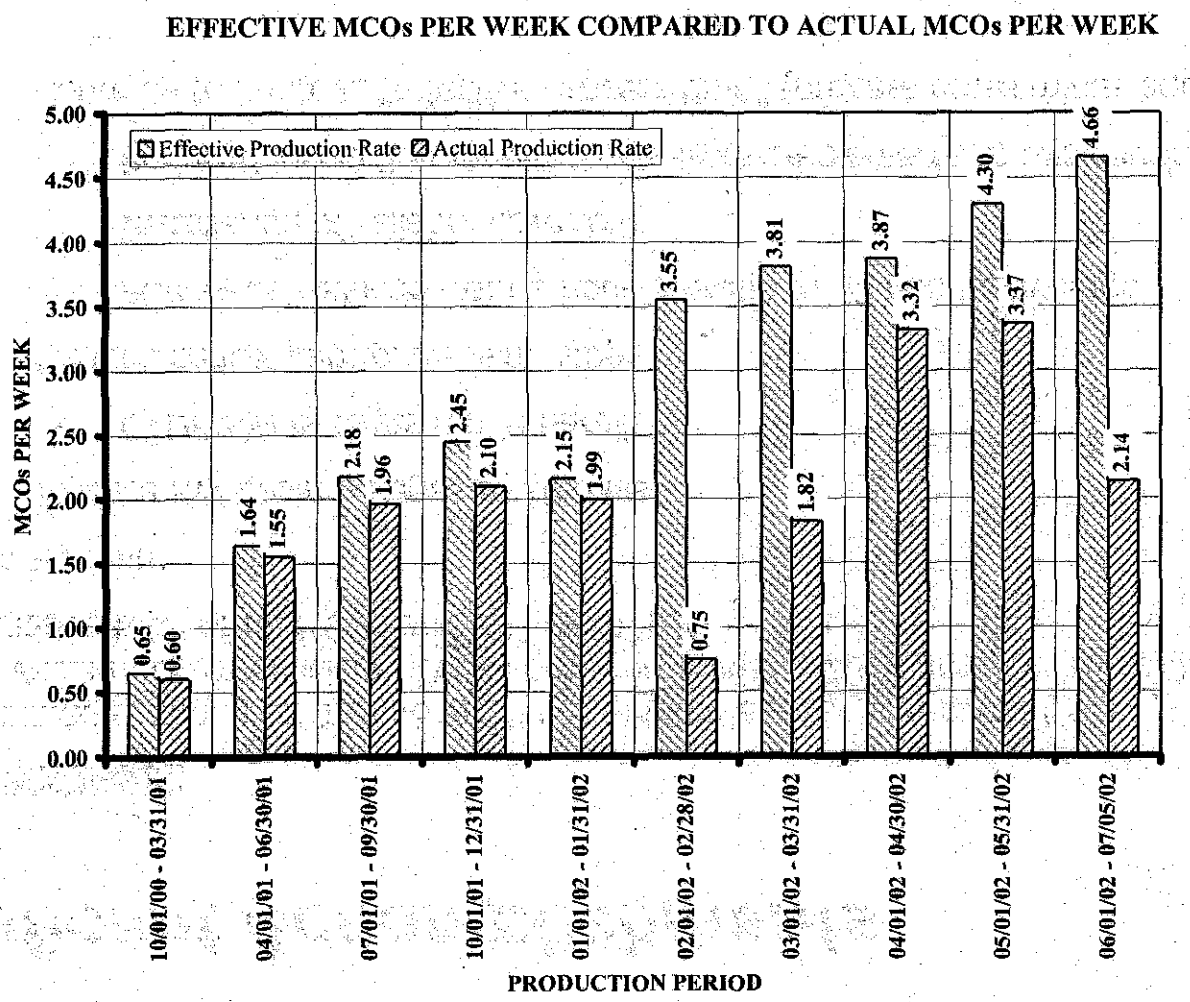
- Completed shipment of 115.46 MTHM (22 Multi-Canister Overpacks (MCOs)) from KW Basin to Cold Vacuum Drying Facility (CVDF) between April 22, 2002 and July 15, 2002, for a cumulative total of 80 MCOs and 387.08 MTHM.
- Recovery Plan:
  - Reduce KW Basin outages to 10 days
    - CVDF/KW outages run in parallel
  - Reduce critical path processing steps

    PCM cycle reduced from 1 hour average to 30 minute average

    Installation of reliable flowmeter

    Reduced inspection requirements from 14 elements to two elements per MCO
  - Continue to improve "effective process time" (process times minus equipment failures)

Significant Accomplishments (continued)



Significant Accomplishments (continued)

Production Efficiencies Implemented:

- End of Batch Accountability Reduction
- Rinse and Wash Reductions
- Validated Heavy Fuel and Aluminum Cans Simultaneously
- Reduced Inspections from 1:10 to 1:20, and then 1:40
- Fluor Consulting – Targeted efficiencies via revised "witness" model
  - Developed an "opportunistic maintenance" process to utilize emergent work window to execute additional maintenance
  - Implemented a robust outage planning process

Significant Accomplishments (continued)

Equipment Reliability Improvements

- Reduced P2 Pump Replacement time from 16 to 4 hours mean time to repair
- Replaced conductivity flowmeter with an ultrasonic flowmeter
- Replaced vendor supplied power wiring for hoists
- Redesigned and replaced original extensions for Telescoping Stiffbacks
- Reduced Multi-Canister Overpack Load-out System (MLS) drive shaft(s) replacement times and redesigned software for more dependable operation
- Redesigned stingers which resulted in an increased service life by a factor of seven
- All priority spares have been ordered
- Mock-up for replacement of MLS/CLS drive-belt available September 2002

Significant Accomplishments (continued)

Fuel Transfer System (FTS):

- Completed Construction Acceptance Tests at both KE and KW Transfer Systems.
- Completed construction of KE and KW FTS Annexes.
- Completed in-basin modifications and equipment installation at KE and KW.

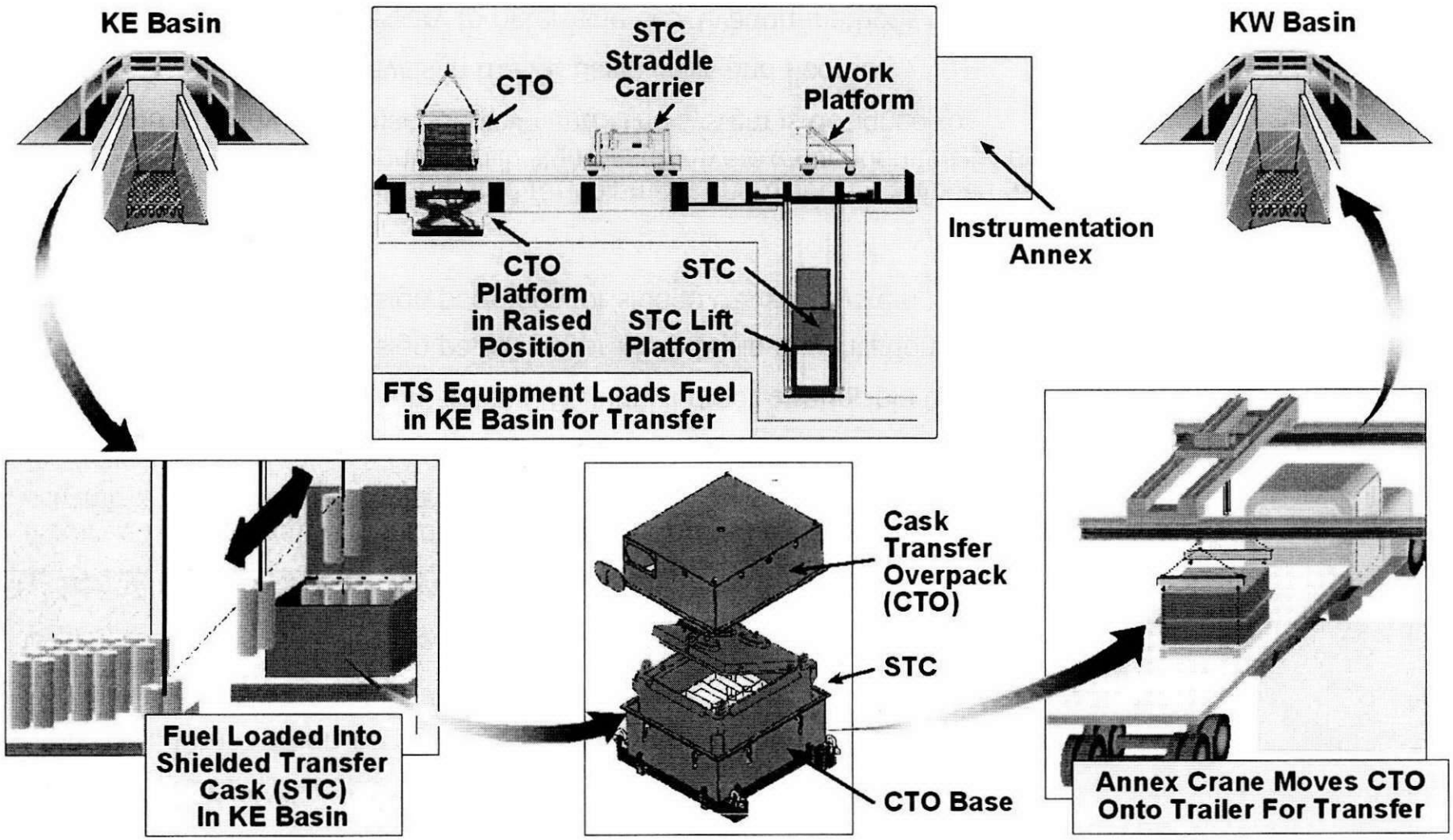
Sludge Water System (SWS):

- Modified procurement and incorporated self-performed construction of in-basin equipment to accommodate schedule requirements.
- Resolved all technical issues related to nuclear safety.
- Completed large diameter containers (LDC) initial proof of principle tests.
- Completed 100 percent design packages for KE in-basin modifications.
- Completed 100 percent design packages for sludge transfer system.

Debris Removal:

- Removed 511 canisters and prepared for shipment and disposal. Shipped 499 canisters to ERDF as of July 8, 2002. System is running well. Non-destructive examination (NDE) of KE Basin walls has been tested and is ready for project deployment. The system is designed to:
  - Determine dose levels in the KE Basin walls and floors
  - Provide data necessary to determine deactivation methods of the KE Basin
  - Eliminate the need for core sampling (if successful)

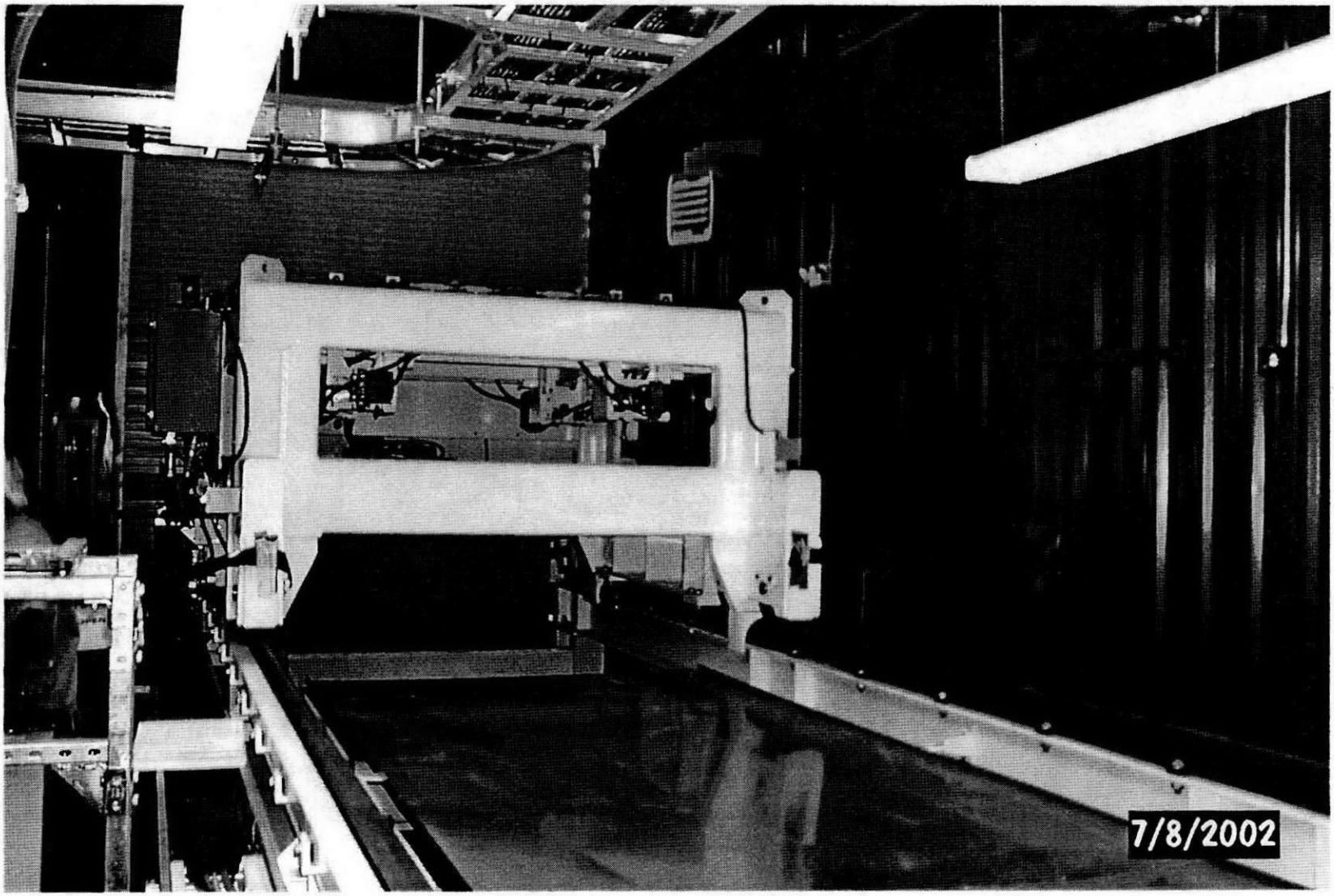
KE-Basin Fuel Transfer System (FTS)



Spent Nuclear Fuel Project

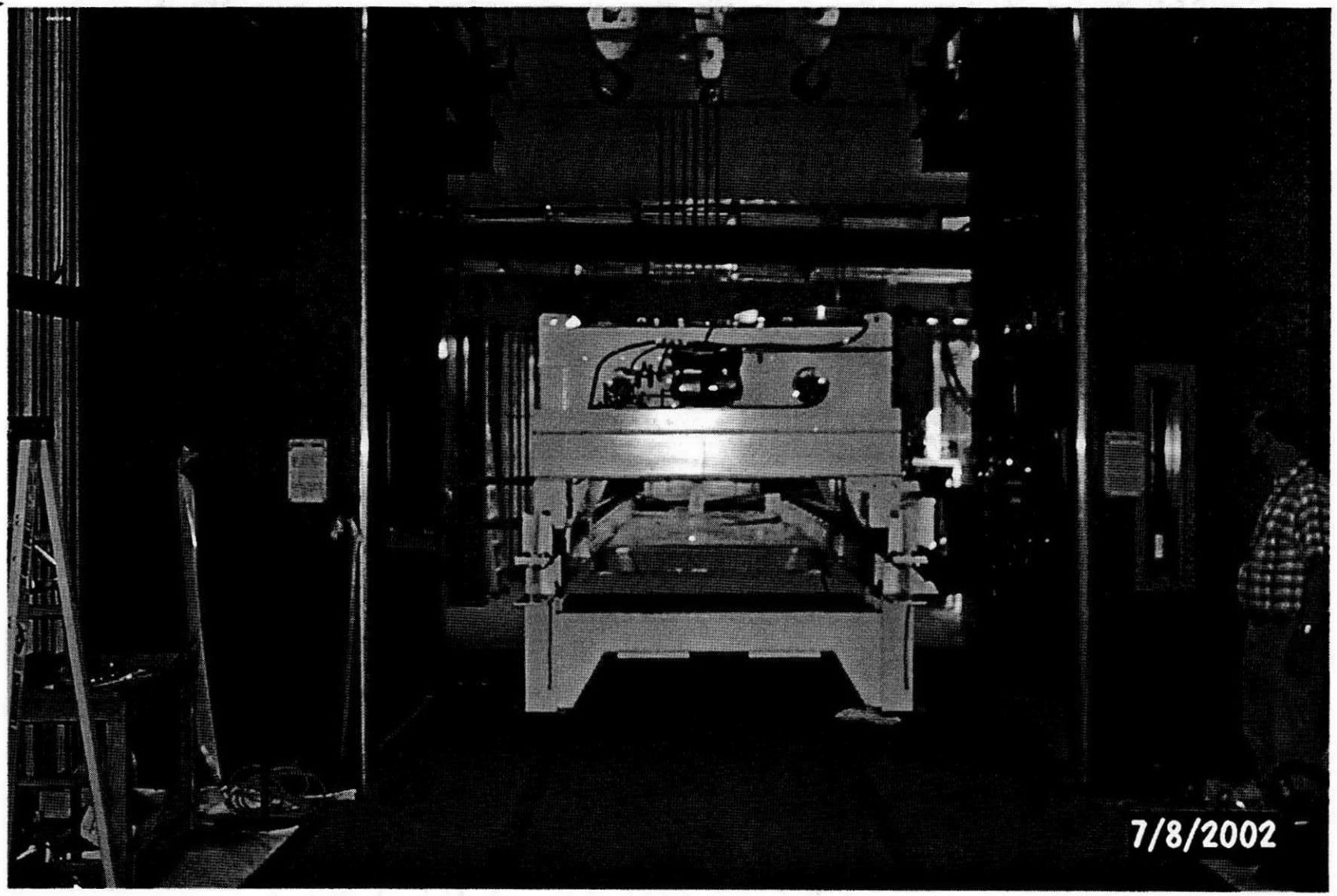
G0207002

FTS Construction Progress



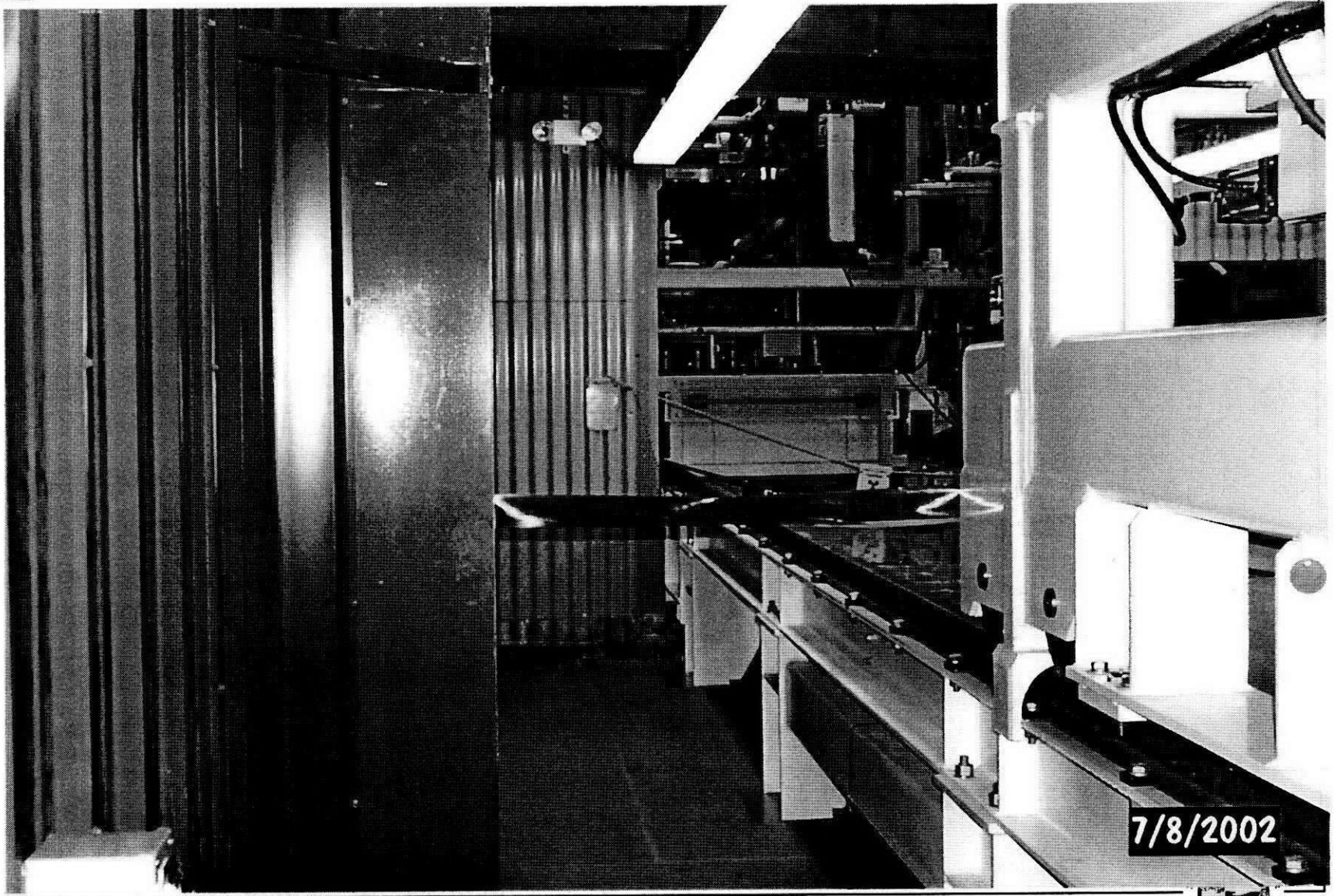
FTS north view in the annex.

FTS Construction Progress



FTS annex south view.

FTS Construction Progress



FTS annex south view.

Significant Accomplishments (continued)

Site-Wide Activities:

- Cleaned out four T-Plant dry storage cells and construction is nearing completion.
- Received Startup Authorization from RL for 200 Area Interim Storage Area (ISA) operations.
- Completed T Plant Contractor Operational Readiness Review (ORR) for Shippingport fuel removal. DOE ORR is in progress.
- Completed light water reactor fuel receipt dry run at 200 Area ISA.

SNF Project Issues/Concerns

Issue: Equipment reliability continues to be a major concern for sustaining fuel movement.

Impact: Continued equipment failures may impact meeting fuel removal commitments

Status: Last three weeks progress demonstrated improvements in equipment reliability (see Accomplishments)

Issue: Removal of SNF from KW basin is behind schedule.

Impact: Fuel removal milestone M-34-18A is in jeopardy.

Corrective Action: Currently evaluating areas for production improvements in the following areas: Further Inspection Reductions, Process Step Evaluations, "Witness" Model to Assist in Focused Improvements. Recovery Plan is well underway (see Accomplishments).

SNF Project Issues/Concerns

Issue: Fabrication, construction and testing of SWS equipment presents a schedule challenge.

Impact: Potential delays to sludge related milestones M-34-12-T01 (due 9/30/02) and M-34-08 (due 12/31/02)

Corrective Action: FH will fabricate selected in-basin equipment; redefined RFP to reduce costs and schedule (in-factory testing and narrowed scope); initiated senior management meetings with vendors; and resolved technical nuclear safety issues.

Upcoming Activities

- SWS – Award SWS contract for in-basin equipment by July 19, 2002.
- SWS – Complete Sludge Transportation System 100 percent design by July 2002.
- Site-Wide Activities – Perform light water reactor (LWR) SNF standard startup review by July 2002
- FTS – Begin FTS operations by July 26, 2002 (M-34-29)
- Site-Wide Activities – Ship NRF TRIGA fuel to 200 Area ISA by August 2002
- Site-Wide Activities – Receive initial Shippingport Fuel at CSB by August 2002
- FTS – Complete contractor ORR by August 2002
- SWS – Complete construction by September 30, 2002 (M-34-12-T01)
- FTS – Complete DOE ORR by September 2002
- SWS – Receive cask and container for sludge in September 2002
- SWS – Complete construction of SWS by September 30, 2002 (M-34-12-T01)
- FTS – Begin KE to KW fuel transfer scheduled for mid-October 2002 (M-34-17, Due: 11/30/02)
- SRS – Complete ORR November/December 2002
- SRS – Operational by December 31, 2002 (M-34-08)
- Complete removal of of 957 MTHM from KW Basin by December 31, 2002 (M-34-18A)
- MCO Welding – Begin welding of MCOs at CSB by February 3, 2003

Permitting and Regulatory Issues

None at this time

Non-TPA Regulatory Issues with Potential to Impact TPA Milestones

None at this time

Spent Nuclear Fuel Project
Project Performance thru Third Quarter FY02
(based on early start schedule)

($ in 000s)

		FYTD							
	By PBS	**BCWS**	**BCWP**	**ACWP**	**SV**	**%**	**CV**	**%**	**BAC**
PBS RS03 WBS 3.2.3.1	SNF Project, 100 K Basins	$ 91,739	86,397	$ 98,693	$ (5,342)	-6%	$ (12,296)	-14%	$ 121,396
PBS RS03 WBS 3.2.3.2	Canister Storage Building (to2004)	$ 6,964	$ 7,093	$ 7,181	$ 129	2%	$ (88)	-1%	$ 9,388
PBS RS03 WBS 3.2.3.3	200 Intrim Storage Area (to2004)	$ 2,142	$ 1,154	$ 1,166	$ (988)	-46%	$ (12)	-1%	$ 2,935
PBS RS03 WBS 3.2.3.4	SNF Project Management and Support	$ 27,985	$ 27,950	$ 26,599	$ (35)	0%	$ 1,351	5%	$ 38,692
	Total	$ 128,830	$ 122,594	$ 133,639	$ (6,236)	-5%	$ (11,045)	-9%	$ 172,411

Schedule Variance - $6,236K

- The unfavorable schedule variance is primarily driven by FTS construction, SWS engineering, and fuel removal being behind.

Cost Variance - $11,045K

- The unfavorable cost variance is primarily driven by actual labor rates being higher than planned and uncredited additional scope in FTS construction/engineering, SWS engineering and procurement and facility maintenance/operations.

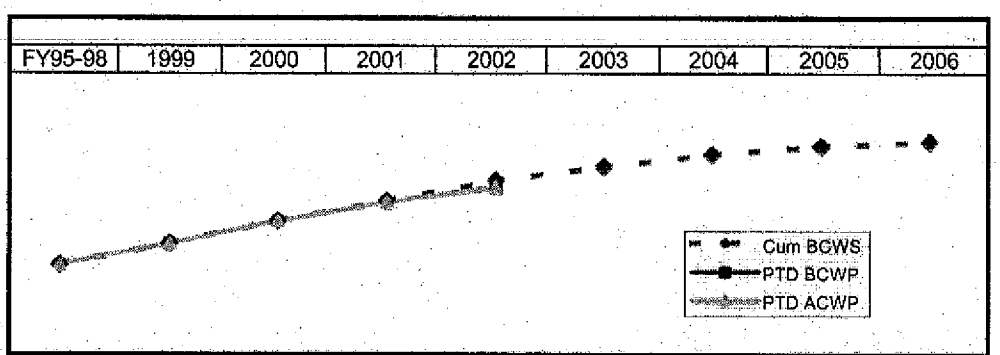
Performance Measurement Terminology

- **BCWS (Budgeted Cost of Work Scheduled)**
  - *BCWS represents the baseline budget for a scope of work over time. BCWS is normally combined with a term such as "Current Period" or "Fiscal Year to Date (FYTD)" to identify the time period the BCWS is associated with. BCWS is created by spreading the baseline cost estimate for a scope of work across its schedule activity duration based on the expected monthly level of activity. BCWS is the basis for the funding requested to perform a scope of work and is maintained through a documented change control process*
- **BCWP (Budgeted Cost of Work Performed)**
  - *BCWP represents the value of the work actually accomplished during a period based upon its budgeted value or BCWS. BCWP is a measure of the value of work based upon the physical work reported complete per the baseline schedule status update*
- **ACWP (Actual Cost of Work Performed)**
  - *ACWP represents the actual costs incurred to perform the work that was completed during a period and recorded as BCWP. For any particular period, ACWP includes accruals for costs not invoiced or booked associated with work that was performed during the period*
- **SCHEDULE VARIANCE (SV)**
  - *SV represents the difference between the work actually accomplished and the work planned or scheduled during any particular time period. (SV= BCWP-BCWS) A positive SV reflects an ahead of schedule situation while a negative SV reflects that work is behind the scheduled plan*
- **COST VARIANCE (CV)**
  - *CV represents the difference between the budgeted value of the work actually accomplished and the actual costs incurred to perform the work. (CV=BCWP-ACWP) A positive CV reflects the work being accomplished for less than its budgeted value and a negative CV reflects the work costing more to complete than planned*
- **BAC (Budget at Completion)**
  - *BAC represents the total baseline budget for a scope of work associated with either a fiscal year or life cycle. BAC is the summary of all monthly BCWS values for a scope of work within the fiscal year or life cycle. On a fiscal year end report the FYTD BCWS will equal the FY BAC*

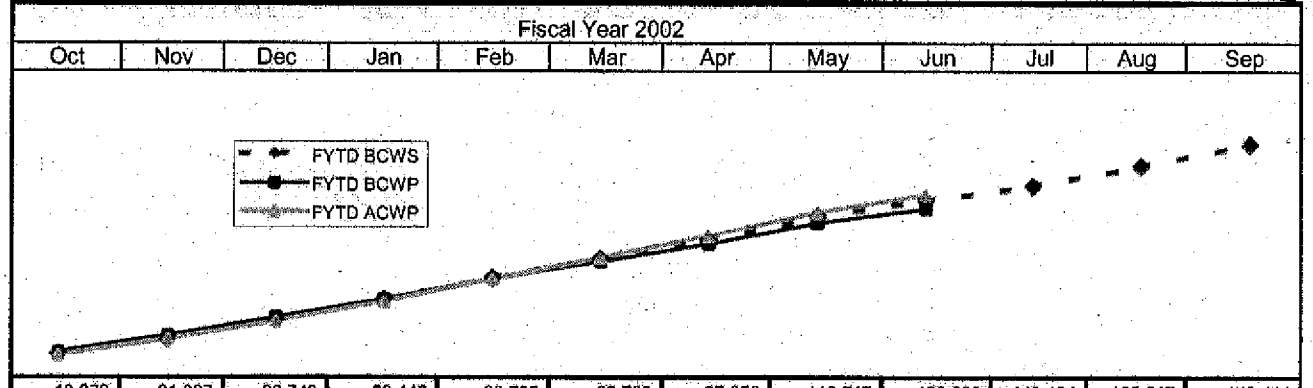
SNF Project – Total Project Baseline

Life Cycle	
*BAC=	1,609,839
EAC=	1,609,839
BCWS=	1,226,069
BCWP=	1,209,392
ACWP=	1,220,491
SV=	(16,678)
CV=	(11,099)

* Current BAC reflects a 10-month acceleration to the TPA completion date.



	FY95-98	1999	2000	2001	2002	2003	2004	2005	2006
Cum BCWS	533,003	718,612	920,376	1,097,239	1,271,929	1,392,693	1,497,862	1,569,050	1,609,839
PTD BCWS	533,003	718,612	920,376	1,097,239	1,226,069				
PTD BCWP	533,003	717,915	916,093	1,086,797	1,209,392				
PTD ACWP	533,003	718,798	920,091	1,086,852	1,220,491				
% Sch	33.1%	44.6%	57.2%	68.2%	79.0%	86.5%	93.0%	97.5%	100.0%
% Cmpl	33.1%	44.6%	56.9%	67.5%	75.1%				
SPI	1.00	1.00	1.00	0.99	0.99				
CPI	1.00	1.00	1.00	1.00	0.99				



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
FYTD BCWS	10,273	21,827	36,749	52,447	68,785	83,789	97,656	116,717	128,830	140,134	155,517	172,411
FYTD BCWP	11,765	24,540	36,679	52,732	68,250	81,659	95,399	111,614	122,595			
FYTD ACWP	9,225	21,427	35,487	50,621	68,324	84,761	101,885	119,699	133,639			
Sched VAR	1,492	2,713	1,930	285	(535)	(2,130)	(2,257)	(5,103)	(6,236)			
Cost VAR	2,540	3,112	3,192	2,110	(74)	(3,102)	(6,486)	(8,085)	(11,044)			

FY 2002 Funding for SNF Project

- **Funding is sufficient to complete critical work during FY 2002.**

SNF Project Performance through Third Quarter FY 2002

($ in thousands)

	FYTD BCWS	FYTD BCWP	FYTD ACWP	SCHED VAR	COST VAR	BAC
KE Basin Facility	4,682.5	4,681.3	5,102.6	(1.2)	(421.3)	6,826.0
KW Basin Facility	15,014.2	13,215.7	14,001.1	(1,798.5)	(785.4)	20,166.3
100K EPC Management	31,259.6	27,709.6	37,065.0	(3,550.0)	(9,355.4)	36,764.0
Balance of Plant	3,161.6	3,192.8	2,984.0	31.2	208.8	4,759.9
Production Integration (Excludes MCO Fab/Baskets	11,483.3	12,525.6	14,443.5	1,042.3	(1,917.9)	15,743.0
Sludge Receipt Mods	5,406.3	5,348.1	4,827.3	(58.2)	520.7	7,406.8
100K Deactivation	1,824.5	885.5	896.6	(938.9)	(11.1)	2,508.2
CVD Facility	8,722.9	8,720.6	8,980.9	(2.3)	(260.3)	12,011.8
CSB Facility	6,423.1	6,421.4	6,320.3	(1.7)	101.1	8,847.3
Site Wide SNF	2,405.7	1,416.7	1,341.8	(989.0)	74.9	3,297.8
Program Management	22,492.4	22,213.2	22,414.5	(279.1)	(201.3)	30,551.4
SNF Project Potential Fee	6,808.6	6,811.3	6,392.8	2.7	418.5	9,372.0
MCO Fabrication and Baskets	9,145.8	9,452.8	8,866.9	306.9	585.9	14,156.5
SUBTOTAL SNF	**128,830.4**	**122,594.5**	**133,637.4**	**(6,235.8)**	**(11,042.8)**	**172,411.1**

BAC does not include fiscal year 2001 carry-over.

The cost variance in BAC does not include pending BCRs.